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ABSTRACT

The idea that parental involvement has a positive influence on students' academic achievement is so intuitively appealing that society in general, and educators in particular, have considered parental involvement as the remedy for many problems in education. The vast proportion of the literature in this area, however, is qualitative without empirical data. Among the empirical studies that have investigated this issue quantitatively, there appear to be considerable inconsistencies. A meta-analysis was conducted to synthesize the quantitative literature about the relationship between parental involvement and students' academic achievement. The findings reveal a moderate, and practically meaningful, relationship between parental involvement and academic achievement. Using moderator analysis, it is revealed that parental aspiration/expectation for children's education achievement as the strongest relationship, while parental home supervision has the weakest relationship, with students' academic achievement. In addition, the relationship is stronger when academic achievement is represented by a global indicator than by a subject-specific indicator. Limitations of the study are noted, and suggestions are made for future studies. (Contains 5 tables and 85 references.) (Author/SLD)

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Parental Involvement and Students' Academic Achievement: A Meta-Analysis

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Running Head: Parental Involvement and Achievement

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Abstract

The idea that parental involvement has positive influence on students' academic achievement is so intuitively appealing that the society in general, and educators in particular, have considered parental involvement as the remedy for many problems in education. The vast proportion of the literature in this area, however, is qualitative without empirical data. Among the empirical studies that have investigated the issue quantitatively, there appears to be considerable inconsistencies. A meta-analysis was conducted to synthesize the quantitative literature about the relationship between parental involvement and students' academic achievement. The findings reveal a moderate, and practically meaningful, relationship between parental involvement and academic achievement. Using moderator analysis, it was revealed that parental aspiration/expectation for children's education achievement has the strongest relationship, while parental home supervision has the weakest relationship, with students' academic achievement. In addition, the relationship is stronger when academic achievement is represented by a global indicator than by a subject-specific indicator. Limitations of the study are noted, and suggestions are made for future studies.

The society in general, and educational researchers in particular, have long been interested in the positive effect that parental involvement may have on students' academic achievement (e.g., Christenson, Rounds, & Gorney, 1992; Epstein, 1991; Keith, 1991; National Center for Education Statistics [NCES], 1997). The intuitive appeal that parental involvement has positive effect on students' academic achievement/success has been so great that policy makers (Prindle & Resinski, 1989; Van Meter, 1994; Wagner & Sconyers, 1996), school board administrators (Khan, 1996; Roach, 1994; Wanat, 1994), teachers (Allen, 1996; Clarke & Williams, 1992; Matzye, 1995), parents (ECS Distribution Center, 1996; Dye, 1992; Lawler-Prince, Grymes, Boals, & Bonds, 1994; Schrick, 1992), and even students themselves (Brian, 1994; Choi, Bempechet, & Ginsburg, 1994), have agreed that parental involvement is critical for childrens' academic success (Akimoff, 1996; Austin Independent School District, 1977; Deford, 1996; Edwards, 1995; Mendoza, 1996; Mundschenk & Foley, 1994; Ryan, 1992). As a result, many studies have been undertaken to adopt or advocate parental involvement programs (Austin Independent School District, 1977; Edwards, 1995; Egan, O'Sullivan, & Wator, 1996; Foster-Harrison & Peel, 1995; Merttens, & Vass, 1993; Patterson, 1994).

Although the appeal of parental involvement as part of a remedy for school education has been strong in the society as a whole, there remain some thorny issues related to research on parental involvement, because the research findings in this area have been somewhat inconsistent. Generally speaking, while many studies showed evidence of positive effect of parental involvement on school learning (e.g., Christenson, Rounds, & Gorney, 1992; Epstein, 1991; Singh, Bickley, Trivette, Keith, Keith, & Anderson, 1995), some others found little, if any, such measurable effect (e.g., Bobbett, 1995; Ford, 1989; Keith, Reimers, Fehrmann, Pottebaum, & Aubey, 1986; Natriello & McDill, 1986).

Despite its intuitive meaning, the operational use of parental involvement has not been clear and consistent. Parental involvement has been operationally defined as parental aspirations for their children's academic achievement and parents' conveyance of such aspirations to their children (e.g., Bloom, 1980), as parents' communication with children about school (e.g., Christenson, et al., 1992; Walberg, 1986), as parents' participation in school activities (e.g., Stevenson & Baker, 1987), as parents' communication with teachers about their children (e.g., Epstein, 1991), and as the rules parents impose at home which are considered to be school-related (e.g., Keith, Keith, Troutman, Bickley, Trivette, & Singh, 1993; Keith, et al., 1986; Marjoribanks, 1983). This somewhat chaotic state in the definition of the main construct not only makes it difficult to draw any general conclusion across the studies, but also may have contributed to the inconsistent findings in this area.

Although parental involvement is often simplistically considered as a single construct, in reality, it is probably better that this construct be conceptualized as being multifaceted in nature, because parental involvement subsumes a wide variety of parental behavioral patterns and parenting practices (*e.g.*, Balli, 1996; Brown, 1994; Snodgrass, 1991; Taylor, Hinton, & Wilson, 1995). Such an approach has been adopted in some more recent empirical studies (e.g., Keith, et al., 1993; Singh et al., 1995). Furthermore, there is some evidence indicating that some dimensions of parental involvement may have more noticeable effect on students' academic achievement than others (Singh, et al., 1995).

In the same vein, there are different indicators of academic achievement, ranging from the more global indicators, such as post-secondary attainment and school GPA, to some more specific indicators, such as standardized test scores in a specific academic area (e.g., math), and even to such variables as students' academic aspiration and students' academic self-concept. It is possible that the measurable effect of parental involvement on students' academic achievement may be different

depending on the degree of generality of the measure for academic achievement (Fan, 1997).

A direct result of this multifaceted dimensions of parental involvement and academic achievement is an inconsistency in the literature as to the beneficial effect of parental involvement on students' academic achievement. As discussed previously, parental involvement and academic achievement have been operationally defined differently by different investigators. The inconsistent operational definitions of both parental involvement and academic achievement has probably led to some inconsistent findings about how beneficial parental involvement is to students' academic achievement, with some studies reporting positive empirical relationships between parental involvement and students' academic achievement (e.g., Christenson, Rounds, & Gorney, 1992; Epstein, 1991; Singh, et al., 1995), and others reporting no measurable effect of parental involvement on students' academic achievement (e.g., Bobbett, French, Achilles, & Bobbett, 1995; Ford, 1989; Keith, et al., 1986; Natriello & McDill, 1989; Reynolds, 1992; Storer, 1995).

Because of the inconsistencies in the literature both about the existence of any measurable positive effect of parental involvement on students' academic achievement, and about the extent of such effect, there appears to be a strong need for conducting a meta-analytic synthesis of the literature about the empirical relationship between parental involvement and students' academic achievement. Such a quantitative synthesis of the empirical findings in this area has the potential to provide insights about the relevant issues related to parental involvement research that are otherwise not readily available from individual studies. It is the purpose of this study to conduct such a meta-analysis.

The body of literature related to parental involvement in students' education appears to be huge--replete with studies involving parental involvement as a factor in students' academic achievement. A close examination of the literature, however, reveals that a very small number of

these studies are empirically based. Among those empirically-based studies which are candidates to be included in this meta-analysis, there are two different types of empirical findings: (i) empirical findings in the form of bivariate correlations between indicators of parental involvement and students' achievement (e.g., Gonzalez & Blanco, 1991); and (ii) empirical findings in the form of regression coefficients from regression analysis, or path coefficients from either regression-based path analyses or structural equation models (e.g., Keith, 1982; Patrikakou, 1997; Singh et al., 1995).

Because regression coefficients and path coefficient(s) representing direct effect of parental involvement on students' academic achievement obtained from a path analysis or structural equation model is necessarily influenced by other variables in the model in a complicated fashion, regression or path coefficients do not lend themselves easily to a meta-analysis, at least not within the current framework of meta-analysis. Because of this, we limited our quantitative synthesis to the first type of empirical studies. We focused on the bivariate relationship between parental involvement and students' academic achievement, and conducted meta-analysis involving correlation coefficients between the two constructs. For this meta-analysis, we are interested in two general questions:

1. What is the strength of the general relationship between measured parental involvement and students' academic achievement?
2. What are some potential study features that have moderating effect on the relationship between parental involvement and students' academic achievement?

Methods and Procedures

Both the ERIC and PSYCHLIT data bases were searched using the following key words either singly or in combination: academic achievement, parental involvement. We initially identified some 2,000 articles, papers, or reports spanning over a ten-year period. These were either published (e.g., in journals and as book chapters) or unpublished (e.g., conference presentations,

technical reports). Based on abstracts of these initial 2,000 plus articles and papers, we narrowed our search to several hundred studies as being relevant to our topic. We further examined the contents of these several hundred articles, and only those that reported their own empirical findings were kept as being potentially usable for this meta-analysis, and all others were excluded from further consideration. It turned out that the number of studies that reported empirical findings about the relationship between parental involvement and students' academic achievement was very small.

Among those studies that reported empirical findings, we finally kept for this meta-analysis only those from which Pearson correlations between any of the parental involvement indicators and any of the achievement outcome variables could be obtained. Twenty-five studies met our inclusion criteria, and were subsequently used in this meta-analysis. From the twenty-five studies, ninety-two correlation coefficients between parental involvement and students' academic achievement were collected. Although we had anticipated that the majority of the articles and papers were non-empirical, we were still surprised that the number of usable empirical studies we were able to find from the literature for this quantitative synthesis was so small, because the overwhelming majority of articles and papers we initially identified were non-empirical.

Coding

It turned out that the operational definition of "parental involvement" in the literature was very diverse and different as it was used in different studies. In some studies, the construct "parental involvement" was clearly defined, and the measurement of this construct was adequately described (e.g., Peng & Wright, 1994). In some other studies, however, the description and measurement for "parental involvement" are very ambiguous and, as a result, leave much to be desired (e.g., Reynolds, 1994). After careful consideration of the variety of definitions for "parental involvement" offered in different studies, we grouped the definitions for "parental involvement" into

several broad dimensions of parental involvement. Similarly, the definition for students' achievement also varies from study to study, although it was not as chaotic as those for parental involvement. Table 1 presents the commonly used indicator variables in the literature for both parental involvement and for academic achievement. The commonly used indicator variables are grouped into broader categories based on the commonalities we identified.

Insert Table 1 about here

Each effect size measure, i.e., the correlation coefficient between parental involvement and students' academic achievement, was coded according to seven study features: (1) the study ID, a number assigned to a study for identification; (2) sample size, a continuous variable indicating the sample size on which the correlation coefficient is based; (3) the subjects' approximate average age; (4) ethnicity of the subjects used (5 categories); (5) type of measure for academic achievement (three categories); (6) area of academic achievement (6 categories); and (7) parental involvement dimension (5 categories). The coding details for these study features were presented in Table 2, and these features were later used in both descriptive and inferential analyses for the correlation coefficients between parental involvement and students' academic achievement.

Insert Table 2 about here

Two types of meta-analyses were conducted. The first, which is based on study features, included all correlation coefficient between parental involvement and students' achievement, and ignored the fact that some studies had multiple effect size measures. In this meta-analysis, each study may contribute multiple correlation coefficients, and the search for variables that have

potential moderating effect on the relationship between parental involvement and students' academic achievement is conducted via a general linear model analysis with the study features as the independent variables, and the correlation coefficients between parental involvement and students' academic achievement as the dependent variable.

The second meta-analysis is a study effect meta-analysis (e.g.,) in which, by averaging multiple effect size measures within one study, each study only contributes one effect size measure to the analysis. Bangert-Drowns (1986) suggested a variation of meta-analysis that is labeled study-effects meta-analysis. Instead of using multiple effect sizes from one study, study-effects meta-analysis only uses one effect size from each study. In case a study has multiple effect sizes, they are typically averaged, and the average effect size is then used in the meta-analysis. This approach has the advantage of avoiding statistical dependence caused by multiple effect sizes from the same study (Hunter & Schmidt, 1990), and it may reduce the potential bias in favor of a few studies that have many effect sizes.

Analyses

To guard against the effect of skewness of sampling distributions of correlation coefficients (Glass & Hopkins, 1996), in our analyses, we applied Fisher z transformation to the correlation coefficients. For example, for obtaining the average of correlation coefficients, each correlation coefficient was transformed to its corresponding Fisher's z, each is then weighted by its corresponding sample size. The weighted Fisher zs were then averaged, and the weighted average Fisher z is then back-transformed to a mean correlation coefficient (Wolf, 1986).

General linear model (GLM) was used to assess the effect of each study feature listed in Table 2 on the correlation coefficients between parental involvement and students' academic achievement. The effects of study features on the correlation coefficients between parental

involvement and academic achievement was assessed by partitioning the variance in the correlation coefficients into different sources contributed by the study features. A common effect size measure, eta-squared [η^2: (sum-of-squares $_{source}$ / sum-of-squares $_{total}$)×100], is used as the descriptive measure for the effect of each study feature on the correlation coefficients between parental involvement and students' academic achievement. Also in our analyses, because the study features are not necessarily independent, the unique sum-of-squares (Type III sum-of-squares) contributed by each source were used for computing the η^2.

For each study feature that was revealed by the GLM analysis described above as having strong moderating effect on the correlation coefficients between parental involvement and students' academic achievement, average correlation coefficients were then obtained for each level of the study feature (e.g., average correlation coefficient between parental involvement and students' academic achievement for parental involvement operationally defined as parental supervision). This average is used as the best estimate for the relationship between parental involvement and students' academic achievement for the specific condition.

In the study-effects meta-analysis, each study contributed only one correlation coefficient between parental involvement and students' academic achievement. In cases in which a study reported multiple correlation coefficients between parental involvement and students' academic achievement, . ll correlations within each study were averaged before conducting other analyses (Bangert-Drowns, 1986).

Results and Discussions

Effects of Study Features

Table 3 presents the GLM analysis for the potential effects of study features on the correlation coefficients between parental involvement and students' academic achievement. In this

analysis, both the original correlation coefficients between parental involvement and students' academic achievement, and their counterparts in the form of transformed Fisher zs, were used as the dependent variables in two separate GLM analyses, and five study features were used as independent variables in the general linear model. As explained previously, η^2 associated with the each study feature was used as the measure for the moderating effect of the study feature. In layman's terms, η^2 represents the percentage of variation in the correlation coefficients between parental involvement and students' academic achievement that is accounted for by the study feature in question.

Insert Table 3 about here

It is obvious from Table 3 that both Area of Academic Achievement (math, reading, science, social studies, etc.) and Parental Involvement Dimensions (different operational definition of parental involvement) stand out to be study features that have strong moderating effects on the relationship between parental involvement and students' academic achievement, accounting approximately for 28% and 27% of the variation in the dependent variable when Fisher zs were used, and accounting for approximately 32% and 35% of the variation in the dependent variable when original correlation coefficients were used as the dependent variable.

On the other hand, Measure of Academic Achievement (test scores, school GPA, etc. used to represent academic achievement in individual studies) has no moderating effect (η^2=1.13 and 1.06 respectively for Fisher z and Pearson r as the dependent variable) on the relationship between parental involvement and students' academic achievement. Age (η^2=5.09 and 4.22 respectively for Fisher z and Pearson r as the dependent variable) and Ethnicity (η^2=5.68 and 4.16 respectively for

Fisher z and Pearson r as the dependent variable) showed very small moderating effect on the relationship between parental involvement and students' academic achievement.

The general linear modeling analyses indicate that the relationship between parental involvement and students' academic achievement should not be generalized across different operational definitions of parental involvement, and nor should it be generalized across different areas of academic achievement. Consequently, it becomes necessary to examine the average correlation coefficients between parental involvement and students' academic achievement separately for different levels of these two study features. For the study feature of Measure of Academic Achievement, the relationship between parental involvement and students' academic achievement is obviously generalizable across the types of measurement for academic achievement (test, GPA, etc.). Both Ethnicity and Age have very small moderating effects on the relationship between parental involvement and students' academic achievement; as a result, we considered it unnecessary to conduct any separate analyses for different levels for these two study features.

Average Correlations

Table 4 presents the average correlation coefficients both across all studies, and separately for the six levels of Area of Academic Achievement and the five levels of Parental Involvement Dimensions, two study features identified in previous general linear model analyses as contributing substantially to the variation of correlations between parental involvement and students' academic achievement across studies.

Insert Table 4 about here

The overall average correlation coefficient between parental involvement and students'

academic achievement is about .25, based on 92 correlation coefficients collected from 31 empirical studies with cumulative sample size of about 133,600. Based on the guidelines suggested by Cohen (1988, Chapter 3) about the magnitude of correlation coefficient as an effect size measure, this average correlation coefficient of .25 represents approximately a medium effect size in social sciences (small effect: r=.10, medium effect: r=.30, and large effect: r=.50), which is approximately corresponding to the more popular effect size measure of d =.52 [1] (d: standardized mean difference between two groups). As suggested by many researchers, a medium effect size typically represents a noticeable and apparent effect (Stevens, 1990, Chapter 3), and it is certainly should not be regarded as trivial.

This overall medium effect size of r=.25 in Table 4 suggests that parental involvement does indeed have positive influence on students' academic achievement. This finding confirms the intuition that many educators and researchers have about the relationship between parental involvement and students' academic achievement, although in individual studies, there has been considerable inconsistency about the magnitude of such relationship.

The break-down analysis for the average correlation coefficients of the six levels of Area of Academic Achievement shows that, for the majority of the reported correlation coefficients between parental involvement and academic achievement, the academic achievement measure is very general (such as general school GPA or combined grades in several academic areas) or not clearly specified in the original articles (k=59). For this large group of correlation coefficients between parental involvement and academic achievement, the average correlation is relatively high (r=.33). But for studies that focused on achievement in more specific academic areas (e.g., math, science), the average correlation coefficients are obviously lower but consistent (approximately r=.18).

We are not entirely clear about the reasons for this observation. We, however, believe that

general school achievement such as that represented by school GPA may be a better indicator for students' overall academic achievement than those that focused on a specific academic area (e.g., math grade or reading test score). There are two reasons to support our belief. First, for obvious reasons, general GPA is a more comprehensive indicator for academic achievement than subject-specific indicators. Second, from measurement perspective, GPA is a composite of multiple measurements, and a composite is generally more reliable than one of its sub-components. As is generally known, variable unreliability has a tendency to attenuate the correlation coefficient between two variables (Hunter & Schmidt, 1990, Chapter 3); consequently, the correlation between parental involvement and academic achievement could suffer if the measurement of academic achievement is less reliable. If this is true, we have reasons to believe that the average correlation for the category of General/Unspecified ($\bar{r} \approx .33$) is a better representation for the relationship between parental involvement and academic achievement than those when academic achievement are represented by subject-specific indicators; thus the findings here suggest that the relationship between parental involvement and students' academic achievement may be slightly stronger than that represented by the overall average correlation coefficient of $\bar{r} \approx .25$.

The break-down analysis for the levels of Parental Involvement Dimensions is also interesting. Some previous research has suggested that some dimensions of parental involvement may have more noticeable effect on students' academic achievement than others (e.g., Singh et. al., 1995). The results here appear to suggest that parental involvement as represented by parents' supervision of children at home (e.g., home rules for watching TV, for doing school work, etc.) has the weakest relationship with students' academic achievement ($\bar{r} \approx .09$), while parents' aspiration and expectation for children's educational achievement appears to have the strongest relationship with students' academic achievement ($\bar{r} \approx .40$). The considerable variation among the average correlation

coefficients between parental involvement and academic achievement contributed by the dimensions of parental involvement explains why this variable accounts for a large proportion of variance in the general linear model analysis presented in the previous Table 3.

The finding that parental supervision has weak relationship with students' academic achievement, while aspiration or expectation for children's educational achievement has considerably stronger relationship with students' academic achievement confirms what some individual studies showed before. For example, Singh et al. (1995), by using structural equation modeling approach, presented evidence that parents' aspiration for children's education is the strongest predictor for academic achievement among all the dimensions of parental involvement examined in their study, and home structure (similar to supervision used in this study) actually showed a very small negative effect on academic achievement.

The findings above, however, should not be interpreted simplistically as indicating that home supervision has very little to offer in enhancing children's education. One potential reason for the weak relationship between home supervision and student's academic achievement as observed here is that, closer parental supervision is implemented at home because students are not doing well academically in school in the first place. If this is the case, close parental supervision in many homes may be the result of poor academic performance of the students. Consequently, parental supervision may have weak, or even negative, relationship with students' academic achievement. The findings here, however, do suggest that parental home supervision is probably not a good indicator for parental involvement in general.

It should be pointed out that some caution is warranted in interpreting the results for these moderator analyses. Because the number of usable empirical studies for this meta-analysis is relatively small in the first place, break-down analysis for the levels of potential moderator variables

(dimensions of parental involvement, area of academic achievement) further reduced the number of correlation coefficients used to compute the average for each level of the moderator variable. As a result, the averages presented in these moderator analyses may not be as stable as we want them to be.

Study-Effects Meta-Analysis

Of the 25 studies used for this meta-analysis, a total of 92 correlation coefficients were collected, because many studies had multiple correlation coefficients between different aspect of parental involvement with different measures of students' academic achievement. As discussed previously, an alternative approach to handle non-independent multiple effect sizes is to conduct study-effects meta-analysis in which an average effect size is obtained from each study, and then an average of all the effect sizes is obtained across studies. Although this approach has the advantage of avoiding the non-independence problem for the data, and may also reduce potential bias in favor of those studies with multiple effect sizes, it also has the disadvantage of making it more difficult or even impossible to examine the potential moderating effects of the study features on the effect sizes. For example, in our analysis, averaging effect sizes within one study usually means to obtain an average effect size across dimensions of parental involvement, or across different areas of academic achievement, or across the levels of both study features. As a result of averaging the effect sizes across the levels of the study features within each study, we lost the information about the study features, and break-down analysis for levels of study features became impossible.

For the reason stated above, we were only able to obtain an overall average correlation coefficient across all the 25 correlation coefficients, many of them are average coefficients within each individual study, from the 25 studies used for this meta-analysis. The overall average correlation coefficient between parental involvement and students' academic achievement from this

study-effects meta-analysis is $\bar{r} = .33$. Readers may notice that this overall average correlation coefficient between parental involvement and students' academic achievement from this study-effects meta-analysis is higher than the overall $\bar{r} = .25$ presented in Table 4.

A close look at the data revealed that it is most likely that the discrepancy was caused by a couple of studies with very large sample sizes and multiple correlation coefficients, but some correlation coefficients were quite low (e.g., Keith et al., 1993). In study-effects meta-analysis, each study only contributes one average correlation coefficient, and only the average correlation coefficient from study was weighted by the sample size. In previous study-feature meta-analysis, such a study contributed multiple correlation coefficients, and each correlation coefficient was weighted by its sample size. In essence, a study with large sample size and multiple effect sizes would be overweighted in the process of obtaining weighted averages. If such a study contains some low effect sizes, they would bias the overall average effect size by pulling it downward. This study-effects meta-analysis reveals that the previous overall average correlation coefficient of $\bar{r} = .25$ is probably a slight underestimate for the relationship between parental involvement and students' academic achievement.

Summary and Conclusions

Although the idea that parental involvement has positive influence on students' academic achievement is intuitively appealing, there is still a great deal of inconsistency in the empirical research literature. Both the multifaceted nature of parental involvement and different measurements for academic achievement have probably contributed to the inconsistencies in the research literature. A quantitative meta-analytic study was conducted to investigate the relationship between parental involvement and students' academic achievement. Several study features were identified as potential factors that might have contributed to inconsistency among the correlation

coefficients from different studies.

Both a study-feature meta-analysis, which allowed multiple effect sizes from one study, and a study-effects meta-analysis, in which each study only contributed one (averaged) effect size, were conducted. Two study features were revealed to have strong moderating effect on the empirically observed relationship between parental involvement and students' academic achievement. For the study feature of Area of Academic Achievement, it was revealed that the relationship between parental involvement and academic achievement is stronger when academic achievement was represented by more global achievement indicator (e.g., school GPA), than by academic subject-specific indicator (e.g., math grade). For the study feature of Parental Involvement Dimension, it was shown that parental home Supervision has very low relationship with students' academic achievement, while parents' aspiration/expectation for their children's educational achievement has the strongest relationship with students' academic achievement.

The overall relationship between parental involvement and students' academic achievement is close to $\bar{r}$ =.30. Although an average correlation of .30 may appear to be low to many people, it should be pointed out that this represents a medium effect size in social sciences. An medium effect size is certainly a meaningful effect, one which is readily noticeable for researchers (Stevens, 1990).

What difference a medium effect size can make in practical terms? As shown by Rosenthal and Rubin (1982) and illustrated by Wolf (1986, pp. 32-33), if we characterize parental involvement as above or below median level, and characterize academic achievement as success (above median level) or failure (below median level), a correlation coefficient of .30 between the two variables translates into increasing the success rate of academic achievement by 30%, an increase that can hardly be characterized as trivial by any standards! Put in this perspective, the results of this meta-analysis do make a good case for the positive influence of parental involvement on students'

academic achievement.

Future studies that examine the relationship between parental involvement and students' academic achievement should pay special attention to the operational definition and measurement of parental involvement, and should carefully document such definition and measurement. If possible, different dimensions of parental involvement should be measured separately, instead of being summed up into a general composite. Also, future studies should carefully consider how academic achievement can be measured most appropriately. If possible, both global indicator of academic achievement (e.g., school GPA) and subject-specific indicator of academic achievement (e.g., math test score or grade) can be used in the same study. This will provide evidence to verify if indeed the relationship between parental involvement and academic achievement will be stronger when academic achievement is measured by a global indicator than when it is measured by a subject-specific indicator.

Like many other studies, this meta-analysis has its own share of limitations. The number of usable empirical studies for this meta-analysis was much smaller than we had anticipated for the voluminous body of literature related to parental involvement. The relatively small number of usable empirical studies has probably made the results from moderator analysis (break-down analysis for dimensions of parental involvement, and that for areas of academic achievement) unstable, because the number of effect sizes for each level of a moderator variable became very small. For this reason, there should be some caution in interpreting the results from the moderator analysis.

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(An asterisk indicates that the study was used in the meta-analysis.)

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Table 1 Commonly Used Indicator Variables of Parental Involvement and Academic Achievement in the Literature

a. Parental Involvement Variables

Parental Involvement -- General

Parent-child Communication

- Interest in home/school work (e.g., Paulson, 1994a, b)
- Assistance with homework (e.g., Gonzales & Blanco, 1991; Peng & Wright, 1994)
- Discusses school progress (e.g., Yap & Enoki, 1995; Peng & Wright, 1994)

Home Supervision

- Time spent doing homework (e.g., Fehrmann, Keith, & Reimers, 1987; Peng & Wright, 1994)
- Time spent watching TV (e.g., Fehrmann et al., 1987; Paik, 1995; Peng & Wright, 1994)
- Home surroundings conducive to studying (e.g., Yap & Enoki, 1995)
- Should come home after school (e.g., Ho Sui-Chu & Willms, 1996)

Educational Aspiration for Children

- Educational expectations (e.g., Hess et al., 1984; Peng & Wright, 1994; Voelkl, 1993)
- Values academic achievement (e.g., Paulson, 1994a, b)

School Contact and Participation

- Parents contact school and school contacts parents (e.g., Ho Sui-Chu & Willms, 1996)
- Parents volunteer at school (e.g., Ho Sui-Chu & Willms, 1996)
- Parents attend school functions (e.g., PTA meetings) (e.g., Paulson, 1994a, b)

b. Achievement Outcome Variables

Overall Grades (GPA) (Fehrmann et al., 1987; Steinberg et al., 1989, 1992)

- Mathematics
- Reading
- Science
- Social Studies

Test scores in mathematics, reading (e.g., Reynolds, 1994), science, social studies (e.g., Keith et al., 1993), music (e.g., Zdzinski, 1992)

Grade Promotion *vs.* Retention (e.g., Marcon, 1993)

Table 2 Coding of Study Features

Study	1 to 31, representing 31 studies used in this meta-analysis
Sample Size	a continuous variable representing the actual or estimated sample size used for each correlation coefficient between parental involvement and students' academic achievement
Age	a continuous variable representing actual or estimated average age of subjects used in studies
Ethnicity	1 - Caucasian 2 - African-Americans 3 - Hispanics 4 - Asian-Americans 5 - Mixed/Unknown
Measure of Academic Achievement	
	1 - School GPA 2 - Tests 3 - Other (Teacher's Rating, Educational Attainment, Grade Retention, etc.)
Area of Academic Achievement	
	1 - Math, Quantitative 2 - Reading, Language Arts 3 - Sciences 4 - Social Studies 5 - Other (e.g., music aptitude/achievement) 6 - General/Unspecified
Parental Involvement Dimensions	
	1 - Educational expectation/aspiration for children 2 - Communication with children about school-related matters 3 - Parental supervision/home structure related to school matters 4 - Parental participation in school activities 5 - Other/General parental involvement

Table 3 Effects of Study Features on the Correlation between Parental Involvement and Students' Academic Achievement (η^2)

Study Features	Dependent Variable	
	Fisher *zs*	Pearson *rs*
Age	5.09*	4.22*
Ethnicity	5.68*	4.16
Measure of Academic Achievement	1.13	1.06
Area of Academic Achievement	27.89*	32.13*
Parental Involvement Dimensions	26.60*	35.17*
Model R^2	.63	.68

* Statistically significant at α=.05.

Table 4 Average Correlation Between Parental Involvement and Students' Academic Achievement

Level of Study Features	k[a]	$\bar{r}$[b]			Σn_i[c]
Overall	92	.2533			133577
Area of Academic Achievement					
Math/quantitative	7	.1805	A[d]		19506
Reading/Language Arts	8	.1793	A		19522
Science	6	.1538	A		18523
Social Studies	5	.1768	A		16382
Other	7	.3424	B		32872
General/Unspecified	59	.3286	B		102321
Parental Involvement Dimensions					
Aspiration for Child Education	10	.3978	A		24826
Communication	10	.1929	B	C	26493
Supervision	12	.0943		C	69137
Participation	7	.3177	B		56755
Other	53	.2975	B		85888

a k represents the number of correlation coefficients used to compute the mean.

b All correlation coefficients have been transformed to their corresponding Fisher's zs, weighted according to sample size, averaged, and then back-transformed to their corresponding rs.

c This refers to the cumulative sample size across studies used to arrive at this mean correlation coefficient.

d These are post hoc multiple comparison results. Means with the same letter are not statistically significant from each other at α=.05 level.

Footnote

1. $d = \frac{2r}{\sqrt{1 - r^2}}$ (Wolf, 1986, p. 35)